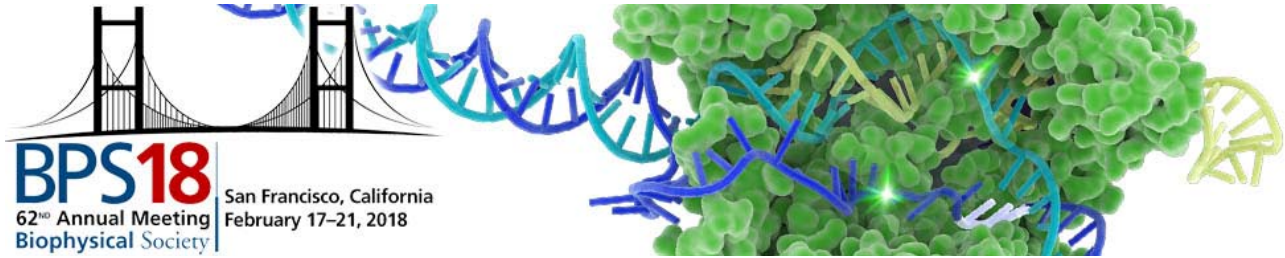

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Control/Tracking Number: 18-A-456-BPS
Activity: Abstract
Current Date/Time: 9/14/2017 4:28:10 AM

PROBING SYNAPTIC AMYLOID-BETA AGGREGATION PROMOTED BY COPPER RELEASE

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Abstract:
Whether or not the metal ions released during synaptic transmission induce amyloid-beta oligomer formation in the vicinity of synapses is a central question pertinent to the molecular mechanism of Alzheimer's disease. Recently, through a combination of experimental kinetics studies and coupled reaction-diffusion simulations, we predicted that Cu(II) rather than Zn(II) plays an important role in the very early stages (i.e., dimer formation) of Aβ aggregation in the synapse. Single molecule photobleaching analysis is a powerful tool to determine the stoichiometry of amyloid-beta oligomers which enables us to examine the time course of small amyloid-beta oligomer formation in solution, immobilised to a solid-phase substrate or artificial lipid membrane, and in live neurons in the presence of Cu(II). Preliminary results indicate that small amyloid-beta oligomers can be locked in their oligomeric state without dissociation on a poly-lysine coated surface and that Cu(II) increases the diversity and abundance of amyloid-beta oligomers.
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